BIBLIOTHECA MEDICA CANADIANA

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INFORMATION FOR CONTRIBUTORS / AVERTISSEMENT AUX AUTEURS

The **Bibliotheca Medica Canadiana** is a vehicle providing for increased communication among all health libraries and health sciences librarians in Canada. We have a special commitment to reach and assist the worker in the smaller, isolated health library. Contributors should consult recent issues for examples of the type of material and general style sought by the editors. Queries to the editors are welcome. Submissions in English or French are welcome.

La **Bibliotheca Medica Canadiana** a pour objet de permettre une meilleure communication entre toutes les bibliothèques médicales et entre tous les bibliothécaires travaillant dans le secteur des sciences de la santé. Nous nous engageons tout particulièrement à atteindre et à aider ceux et celles qui travaillant dans les bibliothèques de petite taille et les bibliothèques relativement isolées. Si vous désirez nous soumettre un manuscrit, vous êtes prié de consulter quelques livraisons récentes de la revue pour vous familiariser avec le contenu et le style général recherchés par la rédaction. La rédaction recevra avec plaisir vos questions et observations. Les articles en anglais ou en français sont bienvenus.

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INFORMATION FOR CONTRIBUTORS

MANUSCRIPTS

The editors of **Bibliotheca Medica Canadiana** welcome any manuscripts or other information pertaining to the broad area of health sciences librarianship, particularly as it relates to Canada.

Contributions should be submitted **in duplicate** and the author should retain one copy. Contributions should be **typed double-spaced** and **should not exceed six pages or 2100 words**. Pages should be numbered consecutively in arabic numerals in the top right-hand corner. Articles may be submitted in French or in English but will not be translated by the editors or their associates. Style of writing should conform to acceptable English usage and syntax; slang, jargon, obscure acronyms and/or abbreviations should be avoided. Spelling shall conform to that of the **Oxford English Dictionary**; exceptions shall be at the discretion of the editors. Contributors who wish to submit their work in machine-readable format should contact the editors in advance to ensure that compatible equipment is available in the editorial offices.

All contributions should be accompanied by a covering letter which should include the author's (typed) name, title and affiliations, as well as any other background information that the contributor feels might be useful to the editorial process.

REFERENCES

All references should be given in the Vancouver style; see **Canadian Medical Association Journal** 1985;132:401-5. Contributors are responsible for the accuracy of their references. Personal communications are not acceptable as references. References to unpublished works shall be given only if obtainable from an address submitted by the contributor.

ILLUSTRATIONS

Any illustrations or tables submitted should be black and white copy camera-ready for print. Illustrations and tables should be clearly identified in arabic numerals and should be well-referenced in the text. Illustrations and tables should include appropriate titles.

AVERTISSEMENT AUX AUTEURS

MANUSCRITS

Les rédacteurs de la **Bibliotheca Medica Canadiana** sont à la recherche de manuscrits ou d'autres renseignements portant sur le vaste domaine de la bibliothéconomie dans le contexte des sciences de la santé. Nous recherchons tout particulièrement des articles relatifs à la situation au Canada et à des thèmes d'actualité.

Les articles devraient être remis **en deux exemplaires** et l'auteur devrait en garder une copie. Les articles devraient être **dactylographiés en double espace** et **ne devraient pas dépasser six pages ou 2100 mots**. Prière de numéroter les pages consécutivement en chiffres arabes en haut de la page à droite. Les articles peuvent être remis en français ou en anglais, mais ils ne seront pas traduits par la rédaction ou par les associés de la rédaction. Le style d'expression écrite se conformera à l'usage et à syntaxe acceptables du français; il est préférable d'eviter l'argot, les sigles et autres abréviations obscures. L'ortographe se conformera à celle du **Robert**; les exceptions à cette règle seront à la discrétion de la rédaction. Les auteurs qui désirent remettre leurs manuscrits sous forme électronique devraient communiquer à l'avance avec la rédaction afin de s'assurer que l'équipement compatible est disponible aux bureaux de la rédaction.

Tout article devrait s'accompagner d'une lettre de couverture fournissant les informations suivantes: nom de l'auteur (dactylographié), son titre et lieu de travail, ainsi que tout autre détail que l'auteur jugerait utile à la rédaction.

REFERENCES

Toute référence devrait être citée selon le style dit de Vancouver; voir le **Journal de l'Association médicale canadienne** 1985; 132: 401-5. Les auteurs sont responsables de l'exactitude de leurs références. Les communications de nature personnelle ne sont pas acceptables comme références. Il ne faut citer une référence à un ouvrage inédit que si ce dernier est disponible à une adresse indiquée par l'auteur.

ILLUSTRATIONS

Les illustrations et les tableaux doivent être en noir et blanc, et prêts à l'impression. Les illustrations et les tableaux doivent être clairement identifiés en chiffres arabes et avoir des renvois clairs dans le corps du texte. Les illustrations et tableaux doivent comporter des titres pertinents.

BIBLIOTHECA MEDICA CANADIANA NEWS AND NOTES

The editors welcome news items from members of the Canadian Health Libraries Association, or any news that may be of interest to members. Please feel free to copy this form in any way for submission, and to attach separate sheets for lengthy items.

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HONOURS ? What ______________________________
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To:
Lynn Dunikowski, Editor
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BIBLIOTHECA MEDICA CANADIANA

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FROM THE EDITORS

Welcome to the first issue of **Bibliotheca Medica Canadiana** to be produced by the new editorial team, here at the University of Western Ontario. Our readers will notice a few alterations in **BMC**'s appearance. We have changed to a double-column format -- our contribution to reducing eyestrain, that occupational hazard we all share. CHLA/ABSC has acquired a microcomputer, printer, and all the software necessary for the editors to produce the journal. This issue of **BMC** is also the first to be produced with this equipment, and our readers may notice a difference in our new printer's style of type.

As each previous Editor has noted, producing **BMC** is a great learning experience. We have been alternately impressed with the capabilities of our word processing software, and depressed by difficulties with our hardware. One of the editors was once called a "techno-peasant", and has never forgotten it. We are aiming to learn enough to rise above this lowly status by the end of our term of office -- maybe we'll be techno-serfs!

We are pleased to bring you, in this issue, a selection of papers from the 11th annual meeting of CHLA/ABSC. Since both the editors were unable to attend, we are particularly happy to have the opportunity to read these papers, and hope you will be too. Michael Smith's paper on genetic engineering has given us a clearer understanding of a concept that was formerly just a "buzz-word" to some of us. The paper by Johanne Daniel on copyright is especially timely, and we hope to have the opportunity of bringing you updates on this important topic in future issues of **BMC**, as the legislative process continues. Babs Flower summarized her report, "Libraries without Walls: Blueprint for the Future", for the meeting; we reproduce that paper for you here. For more information on the full report, see p. 125 of this issue. Under the heading "Original Papers", you will find an interesting account of a consumer health information collection, contributed by Wendy Patrick. The steadily increasing demand for consumer health information that many of us have noticed in our daily work is a trend that we will be wise to recognize.

We would like to thank Tom Flemming, **BMC**'s editor for Volume 8, for all his help, and for his continued willingness to offer advice when we need it. We also thank Tom for setting such a good example for us -- although, in a way, this is a mixed blessing; he'll be a hard act to follow. For our first issue, special thanks are due to David Le Sauvage, who has coped so competently with the problems of setting up our word processing software and hardware.

The leaves are starting to turn in Southwestern Ontario, and we all know what comes next. However you feel about winter, it's a good time to catch up on writing -- letters to the editors, articles, and news and notes on what's happening in your part of the health libraries-community -- for **BMC**. We can be reached in a variety of ways; old-fashioned mail, electronic mail, telephone, or in person, if you happen to be in London, Ontario. All our various addresses are listed on the last pages of the journal. We're looking forward to hearing from you!

Lynn Dunikowski

Lynn Dunikowski
Editor

Claire Callaghan

Claire Callaghan
Assistant Editor

LETTER TO THE EDITORS

Dear Editors:

Canadian health librarians might wish to be aware of what I consider to be "shoddy publishing" by the Canadian Hospital Association. The story is as follows:

In a spring issue of Quill & Quire's forthcoming list we spotted the title "Medical care quality and the public trust" published by the Canadian Hospital Association, Ottawa, and due in April, 1987. We ordered this but upon receiving the book find it to be the same as a 1982 publication with the same title published by Pluribus Press, a division of Teach-em Inc.

The 1987 title page with Canadian Hospital Association imprint does not refer to any previous publication. The Acknowledgements page by the authors, identical in both editions, bears a November 1981 date.

From now on, Canadian Hospital Association publications will be carefully screened in this library before they are purchased.

Bill Fraser
Director
B.C. Medical Library Service

A WORD FROM THE PRESIDENT

Jan Greenwood

Manager of Library Services
Ontario Medical Association
Toronto, Ontario

I returned from England last month more worn out than rested, not so much replete as sated (gastronomically and intellectually!) and sporting a sun-tan. Thus, in a few short weeks, I dispelled, at least to my own satisfaction, three widely held myths: that summers are laid-back times of reflection, that the food in England is generally unpalatable and that the weather there is always cold and rainy.

As some of you are aware, I attended the Annual Conference of the International Federation of Library Associations and Institutions (IFLA) in Brighton. On your behalf I presented a paper at 8.30 a.m. in a small room without air conditioning to a large audience sweltering in temperatures upwards of 30 degrees centigrade. Despite the lamentably early hour and the uncomfortable physical conditions, the session on Standards for Medical and Health Care Libraries, moderated with panache by Tom Wilson of the University of Sheffield, was lively and informative.

Among the issues addressed were the discrepancies which exist among the countries represented at IFLA in even defining "health library standards" as a term, let alone their implementation. Ursula Hausen, Documents Librarian at WHO in Geneva, described in detail the status of health library standards in countries throughout Europe. Canadian hospital librarians can derive some comfort, perhaps, from the fact that in certain countries even the concept of hospital libraries, as we know them, is still very new and standards of any kind have yet to be developed. A paper tabled by Fiona Mackay Picken, a regional librarian in the U.K., sensibly acknowledged that even without official acceptance (authority), library standards can still generate activity in individual libraries which serves to have a positive effect on the collective. This, in part, is what has been happening on the Canadian hospital library scene for years.

In my own paper - which, incidentally, was quite different from the printed version which will be published in INSPEL - I used the

standards of the Canadian Council on Hospital Accreditation as a framework for examining the pitfalls involved in applying standards and the challenges which face those who seek to develop them. I advocated an approach both political and practical and found among the regional librarians I visited in the U.K. following the conference a similar earthy pragmatism! There was also some encouraging interest shown by these librarians and others in the program planned for our 1988 Annual Meeting; who knows, we may take on a more international flavour than usual in Halifax!

While having to give a paper at my first IFLA meeting was somewhat daunting, it is a course I'd recommend to others. I went from knowing few people during the first two days of the conference, to discovering an abundance of new friends and colleagues following my presentation. Anyone for IFLA in Australia, 27 August - 3 September, 1988?

QUELQUES MOTS DE LA PRESIDENTE

Jan Greenwood

Responsable des services
de bibliothèque
Association médicale de l'Ontario
Toronto, Ontario

Je suis rentrée d'Angleterre le mois dernier. J'étais plus épuisée que reposée, moins rassasiée que gavée (gastronomiquement et intellectuellement) et j'étais bronzée. En quelques semaines je détruisais donc, du moins à ma propre satisfaction, trois mythes largement répandus: premièrement que l'été est le moment de relaxation idéal à la réflexion; deuxièmement que les mets anglais ne flattent pas le palais, et qu'enfin le temps en Angleterre est toujours froid et pluvieux.

Comme certains d'entre vous le savent, j'ai assisté à la conférence annuelle de la Fédération internationale des associations de bibliothécaires et des bibliothèques à Brighton. Je présentai mon article à 8 h 30 du matin dans une petite salle sans climatisation; l'auditoire était large et accablé par la chaleur qui, ce jour là, dépassait les 30 degrés centigrade. Malgré l'heure beaucoup trop matinale et le manque de confort, la session sur les normes pour les Medical and Health Care Libraries, conduite avec panache par Tom Wilson de l'université de Sheffield, fut animée et riche en informations.

On traitait entre autres des divergences qui existent entre les pays représentés a l'IFLA. Par exemple, la définition du terme "normes des bibliothèques de la santé", sans parler de leur utilisation varie beaucoup d'un pays à l'autre. Ursula Hausen, bibliothécaire section documents a l'OMS à Genève, a décrit en detail l'état des normes des bibliothèques de la santé dans les pays européens. Les bibliothécaires des hôpitaux canadiens vont peut-être trouver de la consolation à savoir que dans certains pays le terme "bibliothèques de la santé", comme nous les connaissons au Canada, est encore très récent et qu'il faut encore développer des normes de tous genres. Un article présenté par Fiona Mackay Picken, une bibliothécaire régionale du Royaume

Uni, reconnaissait judicieusement que même sans acceptation officielle les normes des bibliothèques peuvent encore donner naissance à une activité dans les bibliothèques individuelles et avoir un effet positif sur les bibliothèques collectives. C'est en partie, ce qui se passe avec les bibliothèques de la santé au Canada depuis des années.

Dans mon article, qui en passant était très différent de la version imprimée qui sera publiée dans l'INSPEL - j'ai utilisé les normes du Conseil canadien d'agrément des hôpitaux comme cadre de travail pour examiner les pièges tendus par l'application des normes et les défis qui s'offrent à ceux qui cherchent à les mettre au point. J'ai préconisé une approche à la fois politique et pratique et j'ai trouvé parmi les bibliothécaires à qui j'ai rendu visite au Royaume Uni, après la conférence, un pragmatisme similaire au mien! Ces bibliothécaires ainsi que d'autres personnes se sont également intéressés au programme projeté pour notre assemblée annuelle de 1988, ce qui est encourageant; qui sait, l'association va peut-être revêtir un caractère plus international que d'habitude à Halifax.

Même si présenter un article à ma première réunion avec l'IFLA était tant soit peu intimidant, c'est une expérience que je recommande. Alors que je ne connaissais que très peu de monde les deux premiers jours de la conférence, j'ai découvert après ma présentation que j'avais une multitude d'amis et de collègues. Ne manquez pas la prochaine conférence de l'IFLA en Australie qui aura lieu du 27 août au 3 septembre 1988!

REPORT OF THE CHLA/ABSC TASK FORCE ON HOSPITAL LIBRARY STANDARDS

Jan Greenwood, Chair

Manager of Library Services
Ontario Medical Association
Toronto, Ontario

Although the Task Force has not met in the flesh, as it were, since its last BMC Report [9(1):9-12] activity has been frenetic. We have all been exploiting to the full the possibilities of electronic messaging, Bell telephone and even Canada Post!

The draft revision of CCHA Standards I-II was circulated to all CHLA/ABSC chapter presidents and select others, and we have been grateful for the helpful response we have thus far received. In particular I would like to thank those individuals who took the opportunity to contact me or other Task Force members. We attempted in revising Standard I: Goals and Objectives, #3 - Extent and Scope of Services, to cite an "objective" which would relate to each of Standards II-VIII. Our intention, at this time, is to expand the current seven standards to eight, by incorporating a new Standard VI which would be the equivalent of the "Care Program" standard which now exists for some other hospital services. This standard would focus upon library services' professional responsibilities which are now largely overlooked by the CCHA Standards. In revising Standards III and IV we will, respectively, pay particular attention to the issues of libraries without trained staff and the impact of the new technology. Background documents on such topics as staffing levels, job descriptions and spatial relationships will eventually be drafted.

Following the October 2-3 Task Force meeting we shall again circulate the results to all Chapter Presidents and hope that they, once again, will encourage discussion at the local level. Those of you who are interested in this process will find it helpful to examine such CCHA Standards as those relating to Patients' Clinical Record Services and Rehabilitation, because the Task Force is seeking to adhere as much as possible to wording and concepts which have already been accepted in principle by CCHA.

STRESS, ASSERTIVENESS, AND LIBRARY WORK

Joanne Gard Marshall

Faculty of Library and Information Science
University of Toronto
Toronto, Ontario

For a number of years I have been teaching a continuing education course on assertiveness training for the Medical Library Association as well as other library groups. Assertiveness training became popular during the seventies as part of the general movement towards self-awareness and self-improvement in North American society. This type of training teaches basic verbal techniques for resolving interpersonal conflicts--situations in which you want to confront another person about their behaviour or, conversely, situations in which you may have to deal with a person who is being aggressive towards you. Since work in libraries often involves supervision of employees and direct contact with the public, it is easy to see where assertiveness skills could come in handy. Assertive behaviour involves standing up for your own rights, but doing so without violating the rights of others.

At this point, you are probably asking yourself what assertiveness has to do with "stress", the other part of the title of this continuing education contribution to BMC. More recently, I have begun to think of assertiveness as one technique for handling a particular type of interpersonal stress. Understanding something about work stress and its origins can help us to see the usefulness of assertive behaviour in a broader context. It can also help us to recognize other factors in our lives that contribute positively or negatively towards our ability to handle stress. In this article, I would like to briefly review some of the research on stress and to link this back to assertiveness as a stress-reducing technique.

WHAT IS STRESS?

The modern concept of stress can be traced to Hans Selye's (1956) work on the body's reaction to stimuli which he called the "General Adaptation Syndrome". Although the idea of a stressful lifestyle had been suggested much earlier, Selye's work was the first to suggest a universal set of physiological reactions to stressful events. This concept was important because it meant that stress was no longer defined as an external event or force; rather it was the way in which the individual physically responded to these events or potential "stressors". In a biological sense, the "stress reaction" was seen as the body's effort to adapt and deal with changing environmental demands. This conceptualization of stress paved the way for the study of another important process, namely the way in which individuals cope with psychological stressors.

If we accept the physiological definition of stress as a reaction to environmental factors, then we can also look at the factors which create an unfavourable environment. A study of job stress conducted by the U.S. National Institute for Occupational Safety and Health (Carey, 1985) suggested that the amount of uncertainty faced by individuals in their jobs affected stress levels. Those who worked in lower level jobs where there were a lot of little "uncertainties" on a day-to-day basis were actually found to experience more stress than their bosses who had more control over their work situations. Librarians ranked 68th out of 130 different occupations in the study's job stress scale.

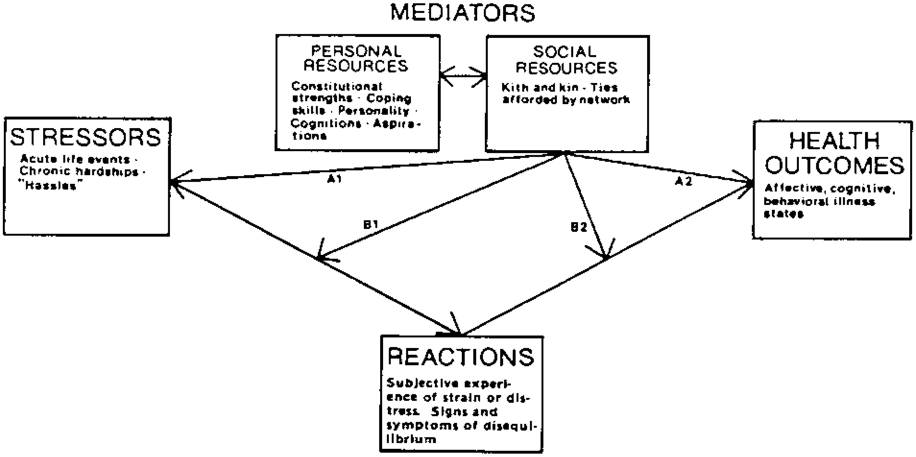
HOW STRESSORS CAN BE MEDIATED

A recent model developed by Gottlieb (1983) has been used to study the work stress experienced by internes and residents in Ontario (Marshall and Hsu, 1984). This model, illustrated in Figure 1, shows how life STRESSORS and the REACTIONS to these stressors can be mediated by both PERSONAL RESOURCES and SOCIAL RESOURCES. In this model, individuals have the opportunity to actively develop their personal and social resources and to use them to modify stress reactions. Personal resources, such as coping skills and personality, and social resources, such as family and friendship networks, are seen as interrelated. These resources have direct effects on reducing the amount of perceived stress, and indirect buffering effects on the stress that is perceived. You will note the link to health outcomes on the right side of the model. The way in which we cope with stress has an effect not only on our psychological well-being, but on our physical health as well.

ASSERTIVENESS AS A PERSONAL RESOURCE

Models such as the one previously described simply provide a framework which can be used to study the complex relationship between stressors, reactions to stressors, and resources that can help individuals to cope with stress. On a more practical and personal level, we can use this knowledge to help build our own resources for coping more effectively with stress. We may also be able to help members of our library staff in the same manner.

Taking an assertiveness training course may be seen as one means of building a particular personal resource. Resolving interpersonal conflicts more effectively at work and at home can strengthen the personal and social resources which we now know play an important part in our general ability to handle all kinds of other stressors. Assertiveness training also emphasizes the part that our own subjective perceptions play in determining our reaction to a stressful situation. Often it is not the actual situation, but our own reinterpretation of the situation in more threatening terms that puts us into "distress".


MEDIATORS
PERSONAL RESOURCES
Constitutional strengths · Coping skills · Personality · Cognitions · Aspirations
SOCIAL RESOURCES
Kith and kin · Ties afforded by network
STRESSORS
Acute life events · Chronic hardships · "Hassles"
HEALTH OUTCOMES
Affective, cognitive, behavioral illness states
REACTIONS
Subjective experience of strain or distress. Signs and symptoms of disequilibrium
A1
A2
B1
B2

A1: Direct effect of social support, e.g., prevents exposure to certain stressors; induces more benign appraisal of threat.
A2: Direct effect of social support, e.g., boosts morale and sense of well-being.
B1: Buffering effect of social support, e.g., preserves feelings of self-esteem and sense of mastery when exposed to adversity.
B2: Buffering effect of social support, e.g., protects against depression when stressful reactions occur.

Fig. 1 A Model of Stressors and Personal and Social Support Taken from: Gottlieb BH. Social Support Strategies: Guidelines for Mental Health Professionals. Beverly Hills: Sage Publications, 1984.

Although some of the approaches suggested in assertiveness training may seem like common sense, changing verbal response patterns that have developed over a lifetime is not easy. The first stage of making these changes is an awareness of the problem situations and our own unassertive reactions. Next we need to find and develop assertive ways of responding in these problem situations. Finally we need to practice these techniques with friends or participants in an assertiveness training workshop, who will provide honest feedback to help establish the new behaviours. Few individuals who develop their assertion skills through reading or by participating in a workshop would claim to be assertive in all of their subsequent behaviour. The important thing to remember, however, is that these interpersonal skills can be learned and that old ways of responding to stressful situations can be changed. With knowledge and practice you will be able to act assertively when you really want to. Using assertiveness skills and building up other types of personal and social resources can increase our chances of living longer and more productive lives.

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IMPLICATIONS OF PROPOSED CHANGES TO THE COPYRIGHT ACT FOR HEALTH LIBRARIES*

Johanne Daniel

Policy Analyst, Legislative Review Branch
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Hull, Quebec

When the Canadian Copyright Act[1] was passed in 1924, it was inconceivable that one day entire books could be copied in a matter of minutes, at the push of a button, in any business or institution. This day has come, and with it, growing concerns of librarians and their patrons, who fear being sued for illegal copying, and of course, of authors, who do not yet have appropriate means to control multiple copying.

For all these people, dissemination of knowledge is the primary objective, but for one group, easy access at low cost is by far the most important issue while for the other, effective control and fair compensation are considered essential. For health librarians, the problems of access to protected works are aggravated by the fact that less than 3% of scientific and technical material in use in Canada is published domestically.[2] Heavy reliance must therefore be placed on foreign sources of publication making the authorization process even more intricate. It therefore becomes urgent to rectify those anomalies created with the flow of time.

The need for copyright revision was recognized in Canada as early as the 1950's.[3] Several major reports[4] were published and extensive consultations took place with all interested parties, but the complexity and sheer number of issues led to a recent decision to divide the revision process into several phases. This decision has enabled the government to act promptly with a manageable first package of amendments on which consensus has been reached. Bill C-60[5] was tabled on May 27, 1987 and deals with eight important matters, including provisions to facilitate the collective exercise of copyright such as authorization for library copying. Second reading of the Bill took place on June 26 and a legislative Committee was appointed to review it. The Committee is expected to resume its work shortly. In the meantime the two departments involved with copyright revision, Communications and Consumer and Corporate Affairs, are working on finalizing policies and drafting amendments likely to form part of the second phase of revision.

This publication is timely as it provides an ideal opportunity to discuss specific issues related to libraries in light of amendments proposed to date. This article

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will deal with issues related to new uses of traditional works, other areas of interest to libraries and finally to new technologies.

THE CONTENT OF REVISION

A) Updating the Act to encompass new uses of traditional works.

By far the most relevant amendments to libraries are Bill C-60's[6] provisions to facilitate the collective exercise of copyright to deal with the administration of those rights that may not realistically be managed on an individual basis. As mentioned earlier, the facility with which works are now being reproduced makes it difficult for copyright owners to control uses, and next to impossible to be remunerated accordingly, while for users, obtaining authorizations can be both time-consuming and costly. Bill C-60 attempts to redress this situation by allowing copyright owners to form "collectives"[7] to administer their rights on their behalf, under the supervision of the Copyright Board.[8] Under the proposed scheme, collectives will be entitled to negotiate general licenses, giving users such as library associations the right to reproduce any work contained in their repertoires. Such licences will set out the tariffs to be paid and the conditions (maximum number of pages, type of works, record keeping, etc.) under which such licences will operate. These negotiations will reduce administrative costs associated with seeking individual authorization and will provide a useful centralized tool on what is available on the market. The Board will have jurisdiction to settle disputes, and a mechanism to file agreements is provided.

The current legislation allows users of protected material to make "fair dealing" in a work (i.e. uses that are not infringements) for the purposes set out in the Act,[9] i.e. for private study, research, criticism, review, or newpaper summary. What constitutes "fair dealing" is not defined. Various changes have been proposed to clarify its meaning, and hence bring more certainty for users such as librarians, who are often uncertain whether the copying of short extracts or single articles constitutes infringement. One approach would be to delineate in the Act factors to be considered in interpreting what constitutes a fair dealing. These might include the impact of the use on a copyright owner's economic expectations, the impact on the demand for the work, the purpose of the use, etc. These factors may prove useful to a judge in a court of law but may not be as helpful for a library patron who may want, for example, to know exactly how many pages of a newpaper article he may freely copy. Another approach would be to estimate and codify every potential use of a category of works and assort it with proper criteria. But with the great variety of works, and uses, this approach may not be realistic.

After extensive analysis and consultations the government has so far decided not to amend the fair dealing defence,[10] leaving it to the interested parties themselves to collectively nogotiate what they believe to be fair practices in their particular area of activity. Several narrow exemptions[11] may still be provided, but the scope of the fair dealing defence will likely remain untouched.

B) Updating the Act to deal with specific concerns of librarians.

Libraries and archival institutions experience problems with the use of protected material deposited in their collections. These difficulties are caused by several factors including the uniqueness of most archival material, the lack of clarity of the Copyright Act in relation to the term of protection for unpublished material (which may be perpetual), and finally, by other practical matters, such as when the donor is not the sole copyright owner of the various works contained in a collection.

In light of the historical significance of archives and of the genuine need of researchers to access these collections, the government intends (at a future stage of revision) to provide an exception allowing for the making of a copy for preservation purposes, and the loaning or duplication of copies of unpublished, out-of-print or otherwise unavailable material for private research purposes, for use on the premises or through interlibrary loans.[12] The term of protection of unpublished material will also be specified so as to correspond to that of published material, and the fair dealing defence made available for these works as well.[13]

An exception to copyright import protection in the current Act[14] allows anyone, presumably including an agent, to import any copies of works required for the use of any public library or institution of learning at any time before the work is printed or made in Canada. This provision has been of crucial importance to specialized libraries who must rely on foreign publications. Some Canadian publishers have claimed, however, that this exception is a threat to the further growth of an indigenous publishing industry. At the present stage of its analysis, the government has not indicated that it plans to amend this provision.

C) Updating the Act to encompass new technologies.

Technologies such as computer data banks and audio visual devices are being rapidly integrated in specialized libraries' inventories. Both as producers and as users of such material, libraries will benefit from the clarification of the status of protection of these new forms of expression. Obviously, computer programs were not mentioned in the original Copyright Act. However, Canadian case law[15] has determined that they are protected as literary works, whatever their medium of storage, for the life of the author plus fifty years. This interpretation has been confirmed and codified in Bill C-60.[16] An exception to this protection allows for the making of back-up copies and of necessary translations or conversions to adapt the program to different hardware.

Computer data bases are presumably protected under the current Act as compilations, in the category of literary works. To alleviate any concern on the availability of such protection regardless of the way in which a compilation may be expressed, the government's intention[17] is to define the criterion of fixation of a work in broad terms in the future.

The definition of collective works now provided in the Act merely enumerates works such as encyclopaedias, dictionaries and newspapers in relation to written material. The government intends[18] to protect new methods used for presenting traditional works, such as records or audio-visual devices.

CONCLUSION

Bill C-60 is the first step towards modernizing Canada's copyright laws. Much work remains to be done to bring the Copyright Act into step with the evolution of society. It will still be necessary for all of us to find the proper balance between the rights of one group against the rights of another, to achieve one common goal: the enhancement of Canada's scientific and cultural heritage.

FOOTNOTES

1. Copyright Act, R.S.C 1970,c. C-30

2. Canada Institute for Scientific and Technical Information: A Response to "From Gutenberg to Telidon: A White Paper on Copyright", March 1985.

3. Royal Commission on Patents, Copyright, Trademarks and Industrial Designs, Queen's Printer, Ottawa, 1957.

4. Economic Council of Canada: Report on Intellectual and Industrial Property, Ottawa, 1971.
A.A. Keyes and C. Brunet: Copyright in Canada - Proposals for Revision of the Law, Queen's Printer, 1977.
Communications Canada and Consumer and Corporate Affairs Canada: From Gutenberg to Telidon - A White Paper on Copyright, Supply and Services Canada, 1984.
Standing Committee on Communications and Culture: A Charter of Rights for Creators - Report on the Sub-Committee on the Revision of Copyright, Supply and Services Canada, October 1985.
Government Response to the Report of the Sub-Committee on the Revision of Copyright, February 1986.

5. An Act to Amend the Copyright Act and to Amend Other Acts in Consequence Thereof (Bill C-60), Second Session, Thirty-Third Parliament, 35-36, Elizabeth II, 1986-87.

6. Bill C-60, op. cit., s.14 amending ss. 50.1 - 50.7 of the Copyright Act.

7. A collective administered by Union des Ecrivains Québécois came into existence in 1984 to deal with reprography in Quebec schools. Until Bill C-60 is enacted, its activities fall under the general regulatory powers of the Competition Act rather than under the Copyright Act. Another collective is about to be formed in English Canada by the Book and Periodical Development Council.

8. Bill C-60, op. cit., s.12 amending ss. 48 - 48.9 of the Copyright Act.

9. Copyright Act, s.17(2).

10. Sub-Committee Report, op. cit., pp. 63-66; Government Response, op. cit., pp. 12-13.

11. No general exception provided to libraries, see Sub-Committee Report, op. cit., pp. 21-22; Government Response, op. cit., p.5.

12. Sub-Committee Report, op. cit., p. 68-70; Government Response, op. cit., pp. 13-14.

13. White Paper, op. cit., pp. 19, 55 - 58; Sub-Committee Report, op. cit., pp. 3, 66; Government Reponse, op. cit., p. 13.

14. Copyright Act., s.28(3)(c).

15. Apple Computer Inc. vs MacKintosh Computers Ltd. et. al., Federal Court of Canada, Trial Division, April 1986 (now being appealed).

16. Bill C-60, op. cit., ss. 1(2) and 1(3) amending s.2 of the Copyright Act; s.5 amending s.17(2) of the Copyright Act.

17. Sub-Committee Report, op. cit., p.41; Government Response, op. cit., pp. 8-9.

18. White Paper, op. cit., p.9; Sub-Committee Report, op. cit., p.3.

LIBRARIES WITHOUT WALLS: Blueprint for the Future*

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What is the state of health sciences libraries in Canada today? What changes have occurred in the last twenty-five years? What trends have developed? Where should we go from here? To find answers to these questions a proposal was developed jointly by the Special Resource Committee on Medical School Libraries (SRCMSL) of the Association of Canadian Medical Colleges (ACMC), and the Board of Directors of the Canadian Health Libraries Association (CHLA). This proposal was submitted by ACMC to the Canada Institute for Scientific and Technical Information, which we know as CISTI, with a request for federal government funding of $66,000. The proposal was well received, and a contract was signed in September, 1986. ACMC was designated to administer the funds through its Executive Office. A Project Committee representing both the medical school libraries and CHLA accepted responsibility for the survey. The span of the project was to be six months, through March 1987, and I was appointed Project Officer.

The study had two main purposes:
a) to gather and present information on health sciences libraries in Canada today, with comparisons to highlight the trends; targeted were the sixteen medical school libraries, libraries in the major teaching hospitals associated with them, and CISTI;

b) in the light of this analysis to recommend steps which need to be taken to improve health information services nation-wide, and which might lead to a functioning health care information network across Canada.

In developing the project we did not limit ourselves to a statistical analysis. We felt that in a forward-looking study such as this, more was needed. Beyond the specifics of numerics there lay a more difficult kind of database composed of the views of informed persons who were actually wrestling with problems of the provision and delivery, or use, of health sciences information. Our approach was therefore as follows:

a) we relied largely on existing statistics, annual reports, policy statements and published documentation;

b) we made site visits to each of the sixteen medical centres in Canada for discussions with the directors of medical school

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libraries and members of the staffs; discussions also with deans of medicine and in some cases of other faculties; with teachers, researchers, clinicians; and discussions as well with teaching hospital librarians and with some hospital administrators.

c) we visited CISTI and talked with senior officials, as well as with officials of the professional associations for Canadian hospitals, dentists, nurses and physicians, and we added Health and Welfare Canada and two major independent library services: the Academy of Medicine in Toronto and the British Columbia Medical Library Services in Vancouver.

In all, some 150 interviews were conducted with individuals, as well as a number of group sessions. The report which came out of all this is titled Libraries Without Walls: Blueprint for the Future. It offers five general sections:

1. A broad-brush summary of the current situation in comparison with the Simon Report from the 1960's.

2. Descriptions of aspects of the current situation with examples.

3. An outline of some of the suggestions and concerns raised by people across Canada.

4. A summary of some of the conclusions which can reasonably be drawn.

5. A set of recommendations for further development.

Health Sciences Library Collections and Services in Canada: that is what the survey was called. After six months of intensive concentration, what can I tell you about them? They are in good hands. The librarians who manage them are dedicated, competent, knowledgeable. Are the collections good ones? There is some question about that. What is a good collection? A comprehensive one in which a large percentage covers areas which are not always actively pursued? Or an active one in which all the material moves regularly off the shelves and back again? Most of our librarians claim to be developing comprehensive collections, at least in some disciplines, but when they cancel journal subscriptions they cancel the ones that seldom circulate. There have been a great many cancellations in the last few years; are our collections still comprehensive, either individually or regionally?

Where are the pockets of excellence? Where has an expert researcher been concentrating on one field for fifteen years with regular support from the library? Where has an expert librarian been collecting for fifteen years in one or two areas of growing importance? Surprisingly, very few health sciences librarians are sure that such a gem is part of their resources. There is no documentation.

Services are important. How are these collections used? By scholars, researchers, practitioners, graduate students. Undergraduates still use Reserves. There are many complaints about lags in document delivery, the costs of interlibrary loans, the volume of interlibrary loans. The advent of MEDLINE has changed the whole scene of health sciences library services by increasing awareness of what is available. In addition, the gradually increasing needs for continuing education in all segments of the health care field have led to innovations in providing information services outside the library: regional outreach, extension librarians, teleconferencing, electronic messaging. Regional development of this sort was one of the topics that came up repeatedly in my interviews across Canada.

Another topic which was under discussion in all sixteen medical school jurisdictions was the application of computer technology to library procedures. It became more and more clear that there was one major point of no return. Academic libraries can automate their circulation, or their serial control, or their cataloguing; but when they finally get their catalog online with remote access from the hospitals and from faculty offices -- that is the crucial point of change. That is when everything else becomes possible, and an interactive information system is born. That is the point which all sixteen medical schools should work toward as soon as possible, if national health sciences information services are to expand. Not all of them are ready. Leadership is needed; planning is needed; research is needed.

Technological applications are expensive, and in the 1980's most library budgets are shrinking. This problem too requires a concerted attack and organizational planning, if the necessary technology is to be put into place. The financial affairs of health sciences libraries in the next decade will be particularly intricate puzzles for management, who must find the funds for technological improvements, and at the same time re-evaluate their budget allocations as library procedures change, as collection rationalization becomes cooperative, and as staff requirements are modified to facilitate the other changes.

As document delivery becomes more and more a matter of receiving from outside on interlibrary loan, this whole procedure will need streamlining. The one outstanding bottleneck reported everywhere in Canada has clearly been the lag in document delivery, both locally and interprovincially. Fees for this service are an important source of funding--but fees for poor service require a radically new approach. Quick location and electronic ordering are useless, if it still takes a week to see the item.

Access to the journal literature is the major item here, and part of the total framework is where the individual journal is available. The collection at CISTI is an essential national back-up. Its commitment to pick up unique titles dropped by other collections, so that they will stay in Canada, is important. But until mechanisms for speedy transfer of documents have been put into place it will be important for many of the less used journals to be available regionally for quicker service. This brings up the question of journal cancellations and collection policies. This too is part of the financial analysis that is needed throughout the country.

It is clear from our study of the sixteen medical centres in Canada that there has been considerable growth since Bea Simon went the same route in 1962. Increases in funding during the 60's and 70's have meant not only larger collections, but more medical schools. Teaching hospitals have increased their attention to information resources to such an extent that there are five times as many libraries with professional staff now as there were in teaching hospitals in Simon's day.

One of Simon's main recommendations was a national bibliographic centre, and although it took several years, the Health Sciences Resource Centre (HSRC) was finally established at the National Science Library, which has since become CISTI. This was an outstanding addition to health sciences information services in Canada then, and it remains essential now. Although many of us have complaints, the HSRC is an important element in our day-to-day services to clients all across the country. What would we do without MEDLARS? Without an ultimate lending resource? Without a reference desk of last resort?

The other important element in information services in the health field since Simon's day is the advent of a variety of databases like MEDLARS, and the installation of automated procedures that can use them. The computer has moved into our professional lives. In the last five years in particular the growth of our collections has tailed off, while the electronic environment has expanded. Some institutions are moving more slowly than others, but everyone is edging into the Age of Technology. This raises questions of problems we have already mentioned. Questions of planning to avoid fragmentation. Questions of which procedures to automate first, and which procedures are essential to have online. Questions of financing and budgeting. Questions of staff requirements.

While collections shrink at the same time that so much money is being spent on automation, questions arise about cooperative services, interlibrary loans and document delivery. They are all inter-related, and document delivery is clearly central, just as an interactive online catalog is clearly central to the development of technology in health sciences libraries. If a satisfactory method can be developed for transferring documents within twenty-four hours, many of the other questions will resolve themselves.

Another aspect of the arrival of computers is the training which librarians receive in order to use them. As a result of their familiarity with computers and databases, librarians in the health sciences field find themselves training other professionals in these skills. This is a very new element in librarianship, one that goes well beyond the traditional orientation tours in academic libraries, and one that will continue to expand as personal and office computers proliferate. However, librarians, like other professional teachers, need training in teaching and learning techniques, as well as training in managing technology, and this is a problem for our Canadian library schools to solve.

Finally, the shape of our health sciences libraries needs definition. The statistics which we have been collecting for years by counting things are clearly not adequate. Here again research may be important. Research into performance measurement may provide some guidelines, so that as we move into new areas of information management, we will be able to describe what libraries do and how good their collections are.

As a result of these observations, our five recommendations are surely predictable. First and of prime importance is the technology.

1. As a matter of urgency a Task Force on harnessing technology for health sciences information should be established.
We suggest that CISTI and the directors of the medical school libraries should work together to provide the necessary leadership, with four objectives:

--To study the configurations of health sciences centres in Canada and their links between academic and health care institutions, and to seek to identify the technological applications that would best enhance their three-fold mission of teaching/service/-research;

--To collect and evaluate current information on the various systems which are available and their components, along with their economic dimensions;

--To test protocols for their compatibility and usefulness to the systems which are developing in the health sciences sector, and to pioneer adaptations, innovations and software as necessary;

--To assemble all this information at CISTI and to disseminate it to the health sciences community through the Health Sciences Resource Centre.

Second and equally primary is the matter of financial support.

2. For each health sciences centre an Information Management Council should be established.
The information system which is developed in a health sciences centre must serve a combination of the medical school and one or more health care institutions. The development and financing of an interactive information system to serve the multiple needs of the group mission requires multi-institution decision bodies to work out formal agreements and assign specific responsibilities. The Association of Canadian Medical Colleges would be the appropriate body to accept responsibility for implementation of this suggestion. A well-balanced Information Management Council would be able to plan and coordinate computer and communication resources to implement information services for the whole complex and its regional outreach. The Council would also be able to identify funding resources to support the system which had been planned.

3. A Joint Committee should be established to study interlibrary loans in the health sciences sector, and to make recommendations on a) ways to manage the volume; b) ways to rationalize costs; c) ways to improve delivery time.
A study of ways and means is appropriate at this time. The Joint Committee should be drawn equally from members of the Canadian Health Libraries Association and members of the Special Resource Committee on Medical School Libraries.

4. It is recommended that a Working Party be struck to review and explore present and potential future sources of financing for health sciences libraries in Canada.

This recommendation is directed first to directors of medical school libraries and members of the Canadian Health Libraries Association jointly, but also to deans and library directors, and other fiscal officers who manage discretionary funds and capital allotments. Funding and budget management are central to the efficiency of health sciences library services across Canada, and in each regional centre. Funding sources, new and not new, need to be identified, and budgets need to be rationalized and revised if the mission of health sciences libraries is to be achieved. An organized effort is bound to be the most effective approach.

5. Finally, it is recommended that the Health Sciences Resource Centre at CISTI be maintained and strengthened.
HSRC is in a position to provide leadership in developments in health sciences information services in this country. There is an opportunity to enter into contracts with the health sciences sector for research in information technology and the training that is a necessary adjunct. There must be expertise at the National Research Council in the development of funding opportunities, and HSRC should take the lead in establishing research priorities. The health sciences sector is a well defined natural laboratory.

The ability of HSRC to take this leadership role can be enhanced in spite of the limitations on staffing currently being experienced by CISTI in the atmosphere of fiscal restraint that pervades Ottawa. For the consideration of CISTI's Director we offer the suggestion that the community which HSRC is designed to serve might be more receptive if senior experienced health sciences librarians were seconded to augment the staff for perhaps two-year periods. This would mean that we ourselves would act as a liaison to clear the path to better understanding.

These are our five recommendations, but this is not the end of the story. You called for a study of Health Sciences Library Collections and Services in Canada. You have that study. It raises questions that urgently need answers. You are called upon now to take your places in one or another of the suggested working groups, for you are the ones who must find the answers.

GENETIC ENGINEERING*

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In the twenty years between 1953 and 1973, a series of discoveries were made in the fields of chemistry, biochemistry and microbiology which have resulted in a revolution in biology, a revolution which has not yet run its course or even reached its climax. The consequences of this revolution have been an enormous increase in our understanding of human inheritance, of infectious diseases and the ways in which our bodies defend themselves against these diseases, of endocrinology, and of cancer; and most dramatically in our ability to modify living organisms in a permanent, predictable way so that they can carry out functions not previously possible. With this comes the ability to make medical products such as hormones, growth factors, vaccines and blood proteins that formerly were not available or which were only available at great expense and in limiting amounts. Beyond this is the expectation that there will be improvements in agriculture and crop production; such as increased disease resistance and greater tolerance to frost, salinity, reduced water supply or low nutrient levels. Interestingly, genetic engineering has spawned a whole new publishing enterprise involving learned journals, symposium reports and newsletters.

The chemical, biochemical and microbiological discoveries and experimental techniques that have made all these things possible are what is called genetic engineering. The realization that genetic engineering had made possible the manipulation of the inheritable units of living organisms that we call genes, in addition to igniting the biological revolution, had two other dramatic consequences, unique in the history of science. The first of these was the arousal of concerns about potential biological hazards of genetic engineering. These concerns, initially expressed in the scientific community, rapidly became the concern of the whole of society. In parallel with these concerns, whose sequelae I will discuss later, there was an almost hysterical rush to found and invest in new biotechnology companies; companies established to exploit the commercial potential of genetic engineering. What I want to do in this article is to describe some of the events since the excitement of the mid-1970's, to put genetic engineering into a broader biological perspective and to illustrate for you a few of the remarkable advances in biology and

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medicine as a consequence of genetic engineering.

The first point to be made is that genetic engineering is a form of biotechnology, which is the manipulation of biology or a biological product for some human end. Biotechnology in general is not a new invention. A relief from an Egyptian tomb of the Fifth Dynasty, that is from a time of about 4,500 years before the present, depicts the winnowing and pounding of grain, the making of dough and the baking of bread, and the making and bottling of beer. In early times the Egyptians used the natural yeasts in air or on fruit, but they learnt to raise and maintain cultures to allow them to carry out baking and brewing in a more reproducible way. This is not the sole example of biotechnology from earlier times. Since before recorded history humans have grown selected kinds of plants for food, ornamentation, and drugs; and animals have been reared for food, work and pets for just as long. Biotechnology also manifests itself in more mundane activities such as cooking.

One perceived bugaboo of genetic engineering is the production of groups of identical individuals; the production of clones. Fermentation, a process designed to produce alcohol, is at the same time a massive cloning of yeast cells, resulting in billions and billions of identical cells. This is no problem. When the fermentation is complete the yeast is trucked away to be used as a food supplement. Similarly, one can grow to advantage a large number of identical plants, for example pine trees. The objective is the production of trees with superior qualities of growth and disease resistance. Again, there is no problem. We start to feel uneasy about cloning when we see the type of experiment in which cell nuclei, which contain the genes, are isolated from embryo cells from an animal and are injected into eggs whose own genes have been removed or destroyed. The result of one experiment of this type is a set of genetically identical frogs. Now there is nothing wrong with a set of identical frogs. But we do feel ill at ease about them, because we worry about the possibility of a brave new world of identical human clones. The interesting thing is that genetic engineering has evoked the feeling that we are about to enter that era. However, the frog cloning experiment was not performed using genetic engineering techniques. In fact, the experiment was performed at Oxford University in the mid-1950's, long before genetic engineering was possible. As far as I am aware, the experiment evoked no interest outside the scientific community at the time it was performed.

DEOXYRIBONUCLEIC ACID

If cloning is not the bête noir of genetic engineering, what is? The answer, in two words and ten syllables, is deoxyribonucleic acid, abbreviated DNA. DNA was discovered by Friedrich Miescher, working in the old German university town of Tubingen. Miescher extracted DNA from the nuclei of pus cells obtained from used hospital bandages. The main interest in DNA at the time it was discovered in 1868 was the fact that it contained phosphorous, a novelty in biological material. However, the direct connection between DNA and genes was not made until 1944. At that time, Oswald T. Avery and his coworkers, MacLeod and McCarty, published the results of their experiments on transforming principle. They were studying an interesting property of pneumococcus, a bacterium which causes pneumonia in humans and kills laboratory mice. There are two forms of the bacterium, rough and smooth. These names describe the appearance of the colonies which grow up from individual bacterial cells when they are placed on a plate of nutrient. The smooth form is the lethal one, whereas the rough form does not cause disease. It had been shown some years earlier, in England, that you can heat the smooth form and in so doing destroy its ability to reproduce and to infect. However, when living rough cells are treated with the dead smooth cells the former take on the smooth characteristic and become lethal to mice. This is the phenomenon called transformation. What Avery set out to do was to identify the factor, or principle, that was responsible. The transforming principle turned out to be DNA! The implication of Avery's work was crystal clear and unambiguous. DNA must contain the inheritable information that programs the smooth, killing characteristic. That is, DNA is the chemical manifestation of the genes whose patterns of inheritance were described by Mendel at almost the same time as DNA was discovered as a chemical substance by Miescher.

It immediately became important to define the detailed chemical structure of the DNA molecule. That this had not been done in the almost 100 years since its discovery was not from lack of effort or because it is hard to isolate. It was because DNA is a large and difficult substance. Its structure was solved in 1953. The shape, of course, is the double helix, and it was deduced by James Watson and Francis Crick. The two long intertwined chains of atoms of which DNA is composed have a fascinating elegance. The double helix, truly, is a major image of the second half of this century. DNA is the genetic material of all cellular organisms, not just the pneumococci, and this includes humans. The DNA in both organisms is exactly the same kind of material but differs in detail. The bacterial cell is about one 1,000th of a millimetre in diameter and its long string of DNA is about one millimetre in length. The DNA of a bacterial cell contains about 5,000 genes. The human cell is about 1,000 times larger in volume than the bacterial cell and contains about 1,000 times as much DNA. A human cell, therefore has enough DNA to have about 1,000 times as many genes as a bacterial cell. In fact, humans probably have only 10 to 20 times as many genes as a bacterium. One very important difference between bacteria and animals, including humans, is that bacteria have one copy of each gene whereas animals have two copies. This means animals can have one bad copy of a gene and still be normal. I will come back to this point later. The total length of the DNA in a human cell is about 2 metres. Each human contains about 10 billion, billion cells. This means that each individual contains about 20 billion kilometres of DNA (a length equivalent to about 100 times the distance from the earth to the sun). Most cells in an adult human are not dividing, but the cells in the bone marrow and gut are. Because of this each person is synthesizing about 1 million kilometres of DNA per day. And one is not even aware of the fact that

DNA is there, let alone that one is a factory carrying out the most precise process known to mankind.

The general structure of DNA includes some important features. DNA contains four nucleotide building blocks, joined in the two long chains. The building blocks, for convenience, can be symbolized as "A", "T", "G" and "C". The two chains are held together, very precisely, by weak but specific chemical bonds which run horizontally across the centre of the double helix. These bonds are such that "A" in one strand always bonds to "T" in the other and "G" always bonds to "C". The two strands fit together as precisely and as snugly as a Yale key in its lock. As mentioned above, the chain-joining bonds, though precise, are weak. This means that, in a living cell, the two strands can be pulled apart and each used as a template to form a new complementary strand that is identical to the one that was removed. It is just as if you took a key out of a lock and then filled the empty key hole with molten metal which would form an identical key when solidified. The possibility of creating a new identical DNA strand, in a living cell, on the template of its complement, provides an exceedingly elegant method for replication and the passage of genetic information on to a succeeding generation. The two strands of the double helix can be made to come apart in a test tube, where the separation can be induced by heating the DNA dissolved in water. The remarkable thing is that, if you keep the solution of separated DNA strands at a lower temperature that which caused them to come apart, then each strand will search until it finds its exact complementary region and then it will pair up to form the perfect double helix again. This ability of a DNA strand to find its correct partner provides a convenient new way for identifying a particular infective agent such as a bacterium. Suppose you get food poisoning and you want to find out what organism is causing the problem. Separated DNA from a sample of the bacterium will only form a double helix with test DNA that you know can cause food poisoning if it is from the same kind of organism, because the four building blocks of DNA are arranged in different order in the DNAs of different organisms. The advantage of this method is speed. Identification, which by classical microbiological methods might take 4 to 6 days, can be done in 1 to 2 days. Already a kit for identification of a common cause of food poisoning, Salmonella, is being sold commercially. A DNA probe for Legionnaires' disease has been developed and others are being used in medical schools for detection of viral infections. It is clear that this simple principle is going to provide an enormously useful set of diagnostic tools.

What has been said to this point has provided some information about the properties and uses of DNA but this does not explain what it is about DNA that makes a gene nor how a gene functions. Animal and plant cells have two major compartments, the nucleus (where lie the chromosomes containing the DNA) and the cytoplasm. Genes encode information. The major kind of product encoded by genes in all types of living organism is proteins. Each living cell contains several thousand different proteins. Most of these are enzymes whose function is to catalyse (speed up) specific chemical reactions such as the breakdown of fat or carbohydrate or protein. Other proteins are structural. They are the scaffolding of cells and tissues. Yet others are receptors. These lie on the outside of cells and recognize specific signalling molecules such as hormones, or molecules like adrenalin which stimulate activity, or the surfaces of infecting viruses. At the molecular level, what differentiates one tissue from another, say brain from heart, is the different family of proteins each contains. Similarly, what differentiates one individual from another or one species from another are their differing families of proteins.

The way in which a gene gives rise to a protein involves two major steps. In the first of these, a single strand of a nucleic acid is produced. This new nucleic acid, messenger RNA, moves from the cell nucleus to the cytoplasm which contains the factories where protein is synthesized. There, the messenger RNA from a given gene programs the production of its corresponding protein. This process creates a problem. It is a problem of alphabets. Nucleic acids have four building blocks; an alphabet of four letters. Proteins, which are built of long strings of amino acids, have twenty different building blocks, an alphabet of 20 letters. The answer to this problem is the genetic code. In this code, a row of three nucleic acid building blocks codes for one amino acid. There are sixty-four possible triplet codons. Some amino acids such as methionine and trytophan have only one codon. Others, such as serine and arginine, have as many as six codons. Three codons are used as signals to define the end of a protein. Elucidation of the gene code was a major landmark of biological science. As a personal digression, I would like to remind you that the work which led to the deciphering of the code started in British Columbia, in the laboratory of Dr. Gobind Khorana at the British Columbia Research Council.

EXPERIMENTAL OPERATIONS

What I want to do next is to define genetic engineering in terms of the experimental operations. In total it is rather complex. However, it can be simplified to a list of key discoveries. The first of these was the discovery of bacterial plasmids. These are minichromosomes, circular DNAs, which replicate independently of the main chromosomes, and which can easily be purified and isolated in a test tube. The bacterium _Escherichia coli_ contains plasmid. _E. coli_ is the common bacterium of the human gut and it is the one that is most used in genetic engineering experiments. There is probably more known about this organism than any other living organism except the human. The second discovery was that of a class of enzymes, called restriction enzymes, which cut DNA into precise pieces. A third discovery was enzymes which would join DNA fragments together, DNA ligases. The fourth discovery was a method for getting plasmid DNA back into a living bacterial cell. The fifth discovery was a method for determining the precise sequence in which the four building blocks are arranged along the strand of DNA molecule. Each gene consists of a few hundred or up to several thousand of these building blocks strung together in a unique specific sequence, and it is essential to be able quickly to determine their order. Lastly, very convenient and automated ways for assembling the four DNA building blocks chemically now allow the synthesis of DNA fragments. These techniques, together, can be used to carry out a genetic engineering experiment. In one experiment a plasmid DNA is cut in one place by a restriction enzyme. In a parallel experiment, DNA from an animal cell is cut by the same enzyme. Because the animal DNA is a million times longer, it is cut into about one million pieces of different lengths. If a large amount of the cut plasmid DNA is added to the animal DNA fragments, then the joining enzyme, DNA ligase, can be used to join just one animal DNA fragment into each plasmid molecule. This is recombinant DNA. These recombinants are added to E. coli cells which have been treated with calcium ions so that they will take up the plasmids. If you then greatly dilute a suspension of the transformed bacteria and spread them on nutrient plates, you get colonies each arising from a single bacterium with each containing a unique fragment of animal DNA as a plasmid recombinant. This is what is called a DNA library or bank. Of course it is not a very good library or bank because you don't know which fragment is which. However, a number of ingenious strategies have been developed for picking out the DNA clone corresponding to a desired gene, so that is not an insurmountable problem.

The first experiment in which an animal DNA (from frog) was cloned in a bacterial plasmid was reported in 1973. This experiment triggered those concerns about potential biohazards that I described earlier. The first public manifestation of these concerns was the publication of a letter from Dr. Maxime Singer and Dr. Dieter Soll to the President of the U.S. National Academy of Sciences. The debates ensued rapidly. These were resolved, in two to three years, by sets of guidelines governing research with recombinant DNAs. The rules prescribed very specific conditions for carrying out all kinds of genetic engineering. The rules had two features, physical containment and biological containment. The nature of physical containment is easy to convey. It requires the kind of laboratory that one associates with experiments in biological warfare and it was the type of laboratory that had to be used in 1976 for experiments involving human DNA. Biological containment requires the use of very exotic bacterial strains, which will only grow under very special laboratory conditions, as hosts for recombinant plasmids. Frankly, work was close to impossible under these conditions.

The situation ten years later is that we now are allowed to work with human DNAs in standard microbiology laboratories using standard laboratory strains of bacteria as hosts. Why has there been this dramatic relaxation of the regulations? There are several reasons. One reason is that people have had time to think. As Dr. Bernard Davis, Professor of Microbiology of Harvard University, has pointed out, human DNA and the DNAs of their infective organisms have been in contact with E. coli in the gut for at least one million years. Thus, if anything awful was going to come of such contact, it would likely have happened long ago. A second realization came from experiments with laboratory strains of E. coli which showed that they do not infect the people who work with them. Even if they are fed to an individual in large numbers, they disappear within one or two days. In addition, bacteriologists who have been exposed all their lives to highly infective organisms pointed out that no epidemic has ever ensued from such work. And, as we learnt more and more about animal and bacterial genes we found that although they use the same genetic code, that is about the only thing their genes do have in common. Different signals are used to program the protein synthesis. And finally, in the last 10 years, millions and millions of recombinant DNAs have been made in thousands of laboratories. And not one untoward event has occurred.

So, now we have a genetic engineering industry. It is still an industry of promise rather than one of substantial economic achievement. But lack of such achievement is more an indication of the time it takes to develop new pharmaceuticals rather than an inability to produce.

USES OF GENETIC ENGINEERING

I now would like to discuss some examples of the use of genetic engineering. In the summer of 1535, Jacques Cartier was on his second voyage of discovery to Canada. By December, 100 of his party of 110 individuals had succumbed to a disease, some of whose symptoms were bleeding around hair follicles and internal bleeding producing extensive bruises. Twenty-five of the party died. Then Cartier found the remedy from the Indians. It was to drink an infusion made from the leaves and bark of white cedar. The problem was that the affected individuals had become ascorbutic. They needed vitamin C. This need for vitamin C is one which humans share with other primates, guinea pigs, the Indian fruit bat, several species of fish and a number of insects. What we lack that rats and mice have is one key enzyme of the several enzymes that are required to convert glucose to vitamin C. The vitamin C pills that we eat today are made by six or seven reactions, most of them chemical. But one of them is carried out by a bacterium. It would be nice if a bacterium could carry out all the reactions. None is known that will do this, but two are known that, between them, will carry out all but one of the required steps. Recently the gene from one of these species has been introduced into the second organism, resulting in a new form, which is now being developed to make vitamin C commercially. The production of special chemicals by microorganisms is already an important biotechnological industry. Amino acids are needed for dietary supplements, and vitamins and antibiotics are produced in this way. There is absolutely no doubt that the type of genetic engineering that I have described for vitamin C is going to improve and extend microbiological synthesis.

Another important aspect of the biotechnology industry is the production of enzymes. These are used in research, in medical diagnosis and industrially. Proteases, enzymes that break down proteins, are one class of enzyme which are used in detergents, in tanning, in food processing, in medicine and in the chemical industry. The most important commercial enzyme of this type is subtilisin, produced by a bacterium, sales of which are over 250 million dollars per annum. The enzyme contains a string of 274 amino acids. Amino acid 222, which is methionine, lies right alongside this crucial part of the enzyme. This methionine can easily be oxidized and, when so oxidized, it prevents the enzyme from working efficiently. Subtilisin is used in detergents, which are often used in conjunction with bleach, which is an oxidizing agent. So you can see the problem. What has been done is to isolate the gene for the enzyme as a recombinant DNA. Then the short part of the gene responsible for amino acid 222 has been replaced by chemically synthesized DNA fragments. The experiment was done in such a way that 19 new genes were produced so that all possible amino acids were tried at position 222. Some of these genes gave rise to inactive enzyme. But others gave fully functional enzyme. When these were tested for their resistance to oxidation, it was found to be very good, except in the one where cysteine was the substituent; it would be expected to be oxidizable. This type of gene manipulation, which has been called protein engineering, is certainly going to be useful for making beneficial changes in industrial enzymes and possibly in proteins made for medical purposes.

At this point, I should describe one application of genetic engineering for which there is inadequate space for full description. This concerns a particular type of mutant fruit fly. The mutation is called biothorax, because it causes the fly to have two thoraxes, the thorax being the front part of the abdomen. The wings are attached to the thorax and consequently the mutant fly has two pairs of wings rather than the normal single pair. The mutation which causes this striking effect is in one of a set of genes called homeotic genes. The proteins produced by these genes control and determine the processes of embryonic development. Because of the great sophistication of fruit fly genetics that has been developed over the past 75 years, it has been possible to isolate several homeotic genes from the fruit fly as recombinant plasmid DNA. Using these DNAs as probes, in the type of DNA-DNA hybridization that I described earlier for identifying bacteria, it has been possible to show that humans have similar genes. By saying this I do not mean to imply that we have latent genes so that we can sprout wings like angels. What I can say is that the fruit fly genes have enabled the identification of genes which are likely to be responsible for our own type of embryonic development; genes that we know must exist, but which we had no idea how to detect.

DNA-DNA hybridization comparisons of this type have also been used to make another remarkable discovery. This time the comparisons have been made between human DNA and DNA derived from viruses that cause cancer in animals. The cancer-causing gene in the virus is an oncogene. As a consequence we now know that humans have a whole family of what are called proto-oncogenes; genes which when mutated in some way can give rise to cancers. This does not mean that we now understand cancer. As one of the scientists responsible for the discovery of proto-oncogenes, Dr. Harold Varmus, has said: "Ask an honest student of oncogenes how to prolong life and he will say: Don't smoke, drive safely, eat sensibly, and work for nuclear disengagement". But there is no scientist that I know who has thought about the discovery of proto-oncogenes, who does not believe they are the light at the end of the tunnel.

I will now turn to my last theme. In New York city in 1863 in Grace Episcopal Church, Charles S. Stratton, who was the child of first cousins, and Lavinia Bump, whose parents were third cousins, were married. The most remarkable thing about this couple is the fact that the groom was 3'2" in height and the bride was 2'8". Her working name was Lavinia Warren and his was General Tom Thumb. The reason they were of such short stature was not known in 1863. We know that it was the lack of a hormone, growth hormone, a protein of 188 amino acids, that is produced in the pituitary. In the case of Tom and Lavinia, it probably resulted from a defective growth hormone gene transmitted in their families. One copy of such a defective gene is no problem. But each inherited two defective copies, one from each parent.

Genetic engineering has made it possible to isolate a copy of the human growth hormone gene. It is done by reversing the normal flow of genetic information but in a test tube. Growth hormone messenger RNA is used as a template to make a DNA encoding the protein, which is then placed in a bacterial plasmid. This DNA can be used as a probe for locating the growth hormone gene in human DNA. In this kind of test, human DNA, isolated from blood cells for example, is cut up with a restriction enzyme and the resultant fragments separated in an electric field according to their size. If you do this experiment with the DNA of a virus, which is quite short, you get 5 to 10 fragments which are easily resolved. But with the thousand or so fragments from bacterial DNA and the million or so fragments from human DNA, there is no clearcut separation. However, a DNA probe can be used to identify the DNA corresponding to a particular gene in this mixture. The experimental method was developed by Dr. Edwin Southern who is now professor of biochemistry at the University of Oxford.

Unfortunately, in humans, there are five genes which look like growth hormone genes. Only one of them is the functional gene. If you look at its DNA fragment in the different individuals, you can see three situations. Some have a lot of the DNA (two copies of the gene) and are perfectly normal. Some have a lesser amount of the fragment (one copy of the gene). These people grow to normal height, but are carriers of the defect just like the parents of Lavinia and Tom. And some individuals have no copies of the gene and consequently will be of very short stature. This methodology is now available not only with growth hormone but for close to two hundred human genes. It offers enormous opportunities for understanding and helping families with inherited defects. But it also raises a new set of ethical problems for the medical profession and for society in general.

I would now like to come back to the question of what you can do with the gene. The gene can be transferred to the fertilized egg of a mouse and the transfected embryo can be implanted with the progeny raised. The consequence is dramatic, resulting in oversize mice. For a whole variety of reasons, this is not a viable option for dealing with human growth hormone problems. The alternative is to use genetic engineering to construct a growth hormone gene that can produce the protein in E. coli, and then to use the protein to treat humans. This involves chemical synthesis of the DNA to ensure that all the correct signals are functioning optimally. This recombinant plasmid can then be used to produce human growth hormone. This brings me to my example of the application of genetic engineering, the case of teenage identical twins, Carrie and Julie Carnes. When Carrie was 10, she fell and banged her head while skating. This accident damaged her pituitary which stopped making growth hormone, and she stopped growing. She was 4'3" in height at the time. Subsequently, she was treated for several years with genetically engineered growth hormone made in E. coli. She is now over five feet in height, as near as makes no difference the same height as her sister.

THE HEALTH WORKSHOP: THE CONCEPT AND THE COLLECTION

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In 1984 CHLA/ABSC published its "Guidelines for the role of health sciences libraries in the provision of consumer health information."[1] These guidelines divide the consumer health information (CHI) involvement of libraries into three levels: basic, moderate, or extensive. It is perhaps dangerous to hazard guesses in print, but it seems unlikely that a survey of Canadian health libraries would find many offering CHI service above the basic level, and a good number might in fact fall below basic. We agree that providing consumer health information is a goal, but too often our reach exceeds our grasp. Most health librarians work in hospitals, medical centres, or universities, and CHI is an extra, an add-on, and not the primary focus of these institutions. When resources are stretched to the limit to support service to the health care team, it is easy to see how CHI could be relegated to desiderata status.

A decade ago, McGill nurses working with a dynamic and creative librarian demonstrated the value of CHI to primary health care. The librarian was former CHLA/ABSC president M.A. Flower, whose work with the nurses suggests that money spent on health information can promote wellness and reduce the use of costly health services.

THE WORKSHOP

The Workshop -- A Health Resource/ L'Atelier à Votre Santé, launched in the spring of 1977, was an innovative demonstration project funded by Health and Welfare Canada and run by the McGill University School of Nursing. It was unique in Canada, a health facility staffed by university-trained nurses in an affluent suburb where people already had access to the full range of health care services. It was important to the aims of the project that it not be located in an economically vulnerable community whose residents would be at risk for the medical and social problems that accompany the struggle against poverty. Beaconsfield was deliberately chosen because its professional and executive families represented a privileged group consuming expensive medical services for lifestyle-related difficulties.[2] As project director Dr. Moyra Allen put it, Beaconsfield was "well-doctored; the people use the doctors and go to the hospitals, but we want to see what nursing can do."[3]

The Workshop was a clinic with a difference. Dr. Allen outlined its aims: "The Workshop is a community health resource comprised of a nursing service and an information service. The aim of this health service is to assist individuals and families to deal with situations of day-to-day living in a healthful fashion. Promotion of health and healthy lifestyles is cast within a learning framework, thus complementing existing services based on prevention and treatment of illness."[4]

From a librarian's point of view, the Workshop was different and exciting because a belief in consumer health information and the importance of library services was embedded as an integral component in Allen's concept of health. The Workshop was based on the philosophy of the McGill Model of Nursing. This model stresses health rather than illness, and works within the context of the family to help people learn to become active participants in their own health care. Health is taken in its broadest sense, meaning not just the absence of disease but optimum physical, social and psychological well-being, encompassing the ordinary events of life as well as the crises of illness or disability. Consumer health information had found a natural home in the McGill Model of Nursing.

THE INFORMATION CORNER

The Workshop's library was known as the Information Corner and as its name suggests, it was intended to be informal and welcoming. The single-story Workshop building was planned for easy access for all, including the handicapped. A sunny central courtyard offered room for meetings, a children's play area, and a place for people to relax, and all of the working areas, including the Information Corner, were accessible to each other and surrounded the central space.[5] The Information Corner was originally planned as a professional library for the nursing staff, but it became obvious very quickly that clients needed information on health, family problems and social concerns. From a small reference collection the library expanded to an information service, not just for the Workshop's clients but for the whole community. As a member of senior management the librarian could respond to needs as she saw them develop, and the Information Corner grew into an active and interactive form of health education. Babs Flower's philosophy was summed up in the memo to the project director at the end of the first six months: "It is important to remember that word service in connection with the information component of the Workshop. The temptation to think of a library as a given number of books on the shelf cuts off about two-thirds of the value of the information concept."[6]

In her "Manual of the Information Corner" she explained her approach to reference service. "The initial concept of this information delivery service involved an attempt to apply special library techniques to a situation that had some public library aspects, and some academic library aspects. Even the nurses... were not used to the special library approach."[7] Giving personalized service from a small collection required the Information Co-ordinator, as she was called, to be a travelling reference librarian, relying not just on the telephone but on personal visits to larger libraries at McGill to locate suitable materials for the nurses and clients to use together.

Initially the collection was based

on subjects known from previous studies to be of concern to the local community, with special emphasis on family interactions from birth to old age, and ways of coping with normal living and the crises of life. Nurses, clients and the general public showed an interest in books on such subjects as parenting, child care, growing old; and on managing specific health problems such as allergies, alcoholism, diabetes, and the like. The common idea behind the selecting for the two groups, professional staff and clients, was that people are the guardians of their own health, and can be active partners in their own health care. Both the scope of the collection and its emphasis on interactive learning made it unique, and there is still much useful data to be mined from its files.

THE WORKSHOP COLLECTION

When the project ended and the Workshop closed in August 1979, the Information Corner was boxed and moved to the McGill School of Nursing. Cut off from its base, it might have become an obsolete or archival souvenir of the Workshop. However, in 1982 two old and well-established libraries serving McGill's schools of Social Work and Nursing were merged to become the Nursing/Social Work Library, and the Information Corner was revived as the Health Workshop Collection, not so much to commemorate the Workshop as to carry on its ideas. Physically, it remains an information corner, shelved apart from the book stacks on either side of an elegant old fireplace in the journal reading room of the library. The small CHI collection that came from Beaconsfield has grown to several hundred volumes, with several dozen titles added annually.

The flavour of the Information Corner is still found in its successor, and the emphasis continues on family and individual well-being, with titles for every age group, including children. Most titles are popular works on health and coping with life's inevitable stresses. Some are explanatory works which give people the facts they need to give informed consent to treatment. Selection criteria specify that books must be authoritatively written in non-technical language and directed at the layman. Circulation figures will not be available from McGill's automated system for another year, but spot checking indicates that the collection is popular, and new acquisitions circulate briskly to our staff and students.

Unfortunately, the collection is no longer readily accessible to the consumers for whom it is intended; the interaction of nurse, client and information that was so much a part of the Workshop has been lost. Despite this difficulty, the Workshop Collection is still a community resource. All new acquisitions are fully catalogued in NLM and listed in MUSE, McGill's new on-line catalogue, and in the UTLAS REFCATSS System. They are available on direct loan to health professionals and on interlibrary loan to public libraries, and the library is open to the public for consultation.

DIFFERENCES BETWEEN THE TWO COLLECTIONS

There have been some changes in the profile of the collection since its move from the clinical field to an academic library. The Information Corner served in two directions, helping the Workshop's clients and the nurses who worked with them. The Nursing/Social Work Library has a collection of 40,000 volumes with over 400 current serial subscriptions, so there is no longer a need to include a professional component with the CHI titles, as this is supplied by the regular collection. CHI itself has been broadened to include an even wider range of subjects, reflecting the interests of social workers as well as nurses.

A useful and popular feature of the Information Corner was its local files and network connections. Almost as soon as it opened, it began to operate as a neighbourhood information and referral service for the Pointe-Claire - Beaconsfield community, tying together information on health and social services with hand-made files on private or less formal resources such as baby-sitting and friendly visiting. This service succeeded because it was current, on-the-spot and co-ordinated by a librarian with her finger on the pulse of the community; it was beyond the mandate of a university library to attempt this role.

The Information Corner was conceived as a service first and a library second. Like the Workshop itself it was unique and experimental, and throughout its short life it was constantly changing, adapting, moulding itself to the emerging needs of its users. Unlike a university library, it had no historical role, no duty to posterity, no preconceived guidelines to be satisfied. In a sense, it has had its wings clipped in the more formal academic environment, but as a survival strategy the move to the Nursing/Social Work Library has assured its continued existence. It is no longer experimental, but it remains a unique example of what might be called the McGill model of consumer health information.

WHAT DID WE LEARN FROM THE WORKSHOP?

Nurses learned a great deal from the Workshop about health and the role of nursing in its promotion and maintenance, and the literature documents the continuing influence of the McGill Model on nursing research, education and practice in Canada.[8] What are the lessons for librarians? Although the Workshop died its library survives; the information transcends the setting. Health knowledge and health education are the underpinnings of a healthy society, whether we are talking about ensuring clean drinking water in the third world or managing executive stress in the affluent west. Florence Nightingale acknowledged this fact in the first book on modern nursing; she began from the premise that there can be no health without a knowledge of the practices of healthy living, and that these practices begin with the family.[9] Certainly, she would have felt at home with the Workshop concept.

Perhaps what the workshop teaches librarians is that service to the health professions, no matter how good that service, is not enough. Consumer health information should be an integral part of the mission of any health library. The whole range of health information, from the simple to the most technical, is our business. The provision of this information can take many forms, depending on the institution and the primary users of the library. It can be as basic as the ordinary courtesy of giving reference and interlibrary loan service to non-health libraries, or it can be expanded to include a variety of direct services to health educators and to the public. The Workshop has given us an example of consumer health information as a basic component of primary health care, and of the role CHI can play when it is built in to the standards and goals of libraries and the institutions they serve.

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NEWS AND NOTES

VERSION FRANCAISE DE "MESH ONLINE"

Une version française de l'article "MeSH Online" par D. Kharouba, ayant parût dans la revue **BMC** v. 9(1), est disponible gratuitement, en écrivant à:

Centre bibliographique des sciences de la santé
Institut canadien de l'information scientifique et technique
Conseil national de recherches Canada
Ottawa, Ontario K1A 0S2

FLOOD IN HOSPITAL LIBRARY

On August 3, 1987, the hospital library at the Hospital for Sick Children was seriously damaged by a flood. Several thousand bound volumes were soaked and many had to be discarded. The library welcomes donations of any duplicates to replace the lost volumes. For a list of titles needed, please contact Deidre Green, Director, Hospital Library, Hospital for Sick Children, 555 University Avenue, Toronto, Ontario M5G 1X8. Tel: (416) 598-6693. Thanks for any assistance you can give!

COMPUTER ASSISTED INSTRUCTION AT MCMASTER

The Health Sciences Library has set up a microcomputer lab in conjunction with the Learning Resources group of the Faculty of Health Sciences. The primary purpose of the lab is to serve as an educational tool, while at the same time making students familiar and comfortable with computers. There are now thirty-eight software packages available for use by medical and nursing students. Most of the packages were purchased from commercial vendors, but were developed by faculty at other medical schools, in particular at Harvard Medical School. McMaster is developing several packages of its own, and already has some available for specific medical problems. The latest of these, called "Mr. Paine", presents five simulated patients, each arriving at the emergency department complaining of pain. Students can then use a menu to find out what is causing the pain, and attempt a diagnosis and treatment. All software packages are fully catalogued and appear in the microfiche catalogue. They can be borrowed through the Audiovisual Department for in-library use only.

MEDLINE ON COMPACT CAMBRIDGE AT CALGARY GENERAL HOSPITAL

The hospital library at the Calgary General Hospital has subscribed to MEDLINE ON COMPACT CAMBRIDGE. The library rents a CD-ROM reader and board from Cambridge, and now has 1986 Medline and the first two quarters of 1987 on disc. Library staff have developed a new operating manual and a training program to help library users familiarize themselves with the system. Elizabeth Kirchner reports that the CD-ROM program is very successful; and that residents, physicians, and nursing staff are pleased with this new service. For more information on how COMPACT CAMBRIDGE was implemented in this library, contact:

Elizabeth M. Kirchner, Chief Medical Librarian
Hospital Library, Calgary General Hospital
841 Centre Avenue East
Calgary, Alberta T2E 0A1
Tel: (403) 268-9234
Envoy 100: EM.KIRCHNER

TORONTO HEALTH LIBRARIES ASSOCIATION MEETINGS

The first meeting of the THLA 1987-88 season, on October 26, addresses the issue of "Pay Equity". The guest speaker is Mr. Rueben Benmergui, Director of Personnel at Oshawa General Hospital. A well-rounded program of events has been planned for the rest of the year, including a CE course on workload measurement and a "how-to" session on disaster planning and procedures. For more information on THLA meetings contact:

Tsai-o-Wong, President-Elect THLA
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100 Queensway
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FROM THE HEALTH SCIENCES RESOURCE CENTRE

Maureen Wong

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As the new Head of HSRC, I would like to take this opportunity to thank you all for your past support of HSRC and CISTI as a whole. I look forward to working closely once again with the health sciences information community in my new role. Through this column, we will continue to keep you informed on new developments at the Centre and at CISTI.

NEW STAFF MEMBER

The Biomedical Information Specialist position left vacant by Suzanne Maranda is now filled by Mary-Lou Veeken who has worked in the Cataloguing Department of CISTI since January 1984. Mary-Lou will be responsible for user education and support for MEDLARS. In addition to co-ordinating the network of Canadian MEDLARS Centres, she also provides reference service. In April and May this year, Mary-Lou worked on secondment at HSRC.

MEDLARS TRAINING

Traditionally, in the fall of each year, HSRC travelled across the country offering update and strategy workshops. Since NLM has announced its plans to replace the in-person update programme with a special update issue of the NLM Technical Bulletin, we have decided that this year we will travel with an introductory and/or advanced workshop. Please call us at (613) 993-1604 should you want more information concerning our MEDLARS workshops.

CHOOSING A PC AND PERIPHERALS

HSRC has compiled a selected list of articles that may be helpful in choosing a microcomputer for searching purposes. We will be happy to supply upon request a copy of this bibliography.

COLLECTIONS DEVELOPMENT

The list of no known locations for journals indexed in MEDLINE and HEALTH was distributed to 240 MEDLARS centres. A list with locations that were reported was passed on to CISTI's Union List division so that the holdings can be updated. After reviewing the final list of titles not held by Canadian libraries, we have recommended a few titles for purchase.

DU CENTRE BIBLIOGRAPHIQUE DES SCIENCES DE LA SANTE

Maureen Wong

Chef du Centre bibliographique des sciences de la santé
Institut canadien de l'information scientifique et technique
Ottawa, Ontario

En ma qualité de nouveau chef du Centre bibliographique des sciences de la santé, j'aimerais profiter de l'occasion qui m'est offerte pour vous remercier de l'intérêt que vous manifestez pour le CBSS et pour l'ICIST. Par le biais de cette chronique, nous continuerons de vous informer des derniers développements survenus au Centre et à l'ICIST.

NOUVEAU MEMBRE DU PERSONNEL

Le poste de spécialiste en information biomédicale laissé vacant par Suzanne Maranda a été comblé par Mary-Lou Veeken, entrée au service de l'ICIST en janvier 1984 à titre de bibliothécaire de catalogage. Mary-Lou sera chargée de la formation des utilisateurs du MEDLARS, du suivi, de la coordination du réseau des centres du MEDLARS au Canada et de la prestation de services de référence. Au mois d'avril et mai de cette année Mary-Lou avait été détachée au Centre.

FORMATION AU MEDLARS

Comme chaque année à cette époque, le CBSS donnera à travers le pays, une série d'ateliers d'actualisation et de perfectionnement en matière de stratégies de recherche. Etant donné que la NLM a annoncé son intention de remplacer le programme d'actualisation offert au personnel du CBSS par un numéro spécial de mise à jour du Technical Bulletin de la NLM, nous avons décidé cette année d'offrir à travers le Canada un atelier d'introduction ou de perfectionnement ou les deux. Pour de plus amples renseignements sur les ateliers du MEDLARS, veuillez composer le (613) 993-1604.

LE CHOIX D'UN OP ET DES PERIPHERIQUES

Le CBBS a dressé une liste d'articles pouvant s'avérer utiles lors du choix d'un micro-ordinateur pour la recherche documentaire. Nous serions heureux de faire parvenir cette bibliographie à tous ceux qui en feront la demande.

ENRICHISSEMENT DES COLLECTIONS

La liste des revues indexées dans les fichiers MEDLINE et HEALTH pour lesquelles aucune localisation n'était connue, a été envoyée à 240 centres du MEDLARS. Les localisations qui nous ont été rapportées a ensuite été envoyée à la section du Catalogue collectif de l'ICIST. Après avoir examiné la liste des titres pour lesquels il n'existe aucune localisation au Canada, nous avons recommandé l'achat d'un certain nombre de ces titres.

MEETINGS/WORKSHOPS

Online Databases for Health Professionals

Location: Bell Trinity Square, Toronto, Ontario
November 13 or 20, 1987; February 12 or 19, 1988

The Continuing Education Office, Faculty of Medicine, University of Toronto offers this course on computers in medicine, which will focus specifically on "Online Databases for Health Professionals". The one-day course, to be repeated on four different dates, will provide an opportunity for "hands-on" searching of the MEDLINE database, with the assistance of trained librarians. The course fee is $150. The course is being planned in collaboration with InfoHealth, an online information service of the Canadian Hospital Association, and Telecom Canada. More information on the course may be obtained from Continuing Education, Faculty of Medicine, Medical Sciences Building, Toronto, Ontario M5S 1A8. The telephone number for course enquiries is (416) 978-2718.

Ontario Health Libraries Association 2nd Annual Meeting

Location: Metro Toronto Convention Centre, Toronto, Ontario
November 29 - 30, 1987

OHLA will have its second annual meeting on November 30, 1987 at the Ontario Hospital Association Convention in Toronto. This is the first time that OHLA will participate in the OHA Convention as a "section". The theme of the meeting is "Management Strategies for the Small Library: Commitment, Courage and a Lot of Heart". The principal speaker will be Guy St. Clair, author of "**Managing the One Person Library**". Registration for the meeting is included in the registration for the OHA Convention.

In addition to the Annual Meeting, OHLA will hold a CE Workshop on Sunday, November 29th; MLA CE246: Budgeting for Small Libraries. The course will be given by Jean Antes, founder of the first rural circuit librarian program in the U.S. Please note that registration for this course is separate from the convention. Registration is limited to 30 participants.

For more information, contact:

Susan Hendricks, Oshawa General Hospital
24 Alma Street, Oshawa, Ontario L1G 2B9
Tel: (416) 576-8711 ex 3334

ITCH '87: A Conference Examining Information Technology in Community Health

Location: The Coast Harbour Towers, Victoria, British Columbia
November 22 - 25, 1987

ITCH '87 will review the effectiveness of information technology currently in use in the delivery, monitoring and planning of Community Health Services. In addition, the examination of future directions, trends and impact of information technology in the Community Health sector will be explored. ITCH '87 is sponsored by the University of Victoria School of Health Information Science and the Canadian Public Health Association. For more information, contact:

Mr. Tom Lietaer, Conference Services
University of Victoria, PO Box 1700
Victoria, British Columbia V8W 2Y2
Tel: (604) 821-8475
EMS: MHN@UVVM.BITNET

Database End-Users: Experiences, Problems, and Prospects

Location: Faculty of Library and Information Science,
University of Toronto, Toronto, Ontario
November 27, 1987, 9:00 - 4:30

Database vendors have recently begun to create and market online and CD-ROM products specifically for searching by the end user, or the person with the information need. This workshop is designed to explore the issues raised by this trend. Speakers who have been involved in planning, implementing and evaluating end user systems will share their experiences and problems. A panel of librarians from different library settings (academic, special, community college and public libraries), will also comment upon the prospects for end-user service in their own type of setting. This workshop will be of particular interest to health sciences librarians, since a number of the key speakers will be from health sciences libraries (Tom Flemming and Lynda Baker from McMaster, Rita Shaughnessy from the Toronto General Hospital and Joanne Marshall from FLIS). For further information, contact U of T Faculty of Library and Information Science, Continuing Education, 140 St. George St., Toronto Ontario M5S 1A1. Tel: (416) 978-7111.

NEW PUBLICATIONS

Flower MA. **Libraries Without Walls: Blueprint for the Future.** Report of a Survey of Health Science Library Collections and Services in Canada.[Toronto]: Joint Project of the Special Resource Committee on Medical School Libraries of the Association of Canadian Medical Colleges, and the Canadian Health Libraries Association, 1987. 148 p.

This report provides an analysis of health sciences libraries across Canada today, with comparisons to highlight trends over the years. Major changes noted since the last comprehensive study in 1962 are (a) very substantial growth, (b) the much-needed establishment and operation of the Health Sciences Resource Centre at CISTI, and (c) the advent of sophisticated technological advances. The evidence indicates that growth over the past five and ten years, however, has not nearly kept pace with expanding needs and with expenditures in other aspects of Canada's health enterprise. In addition to a summary of the issues which Canadian health sciences librarians must now resolve, the report concludes with recommendations related to technology, finance, and administrative accommodations within and between health care institutions. Copies are available from:

Canadian Health Libraries Association/
Association des bibliothèques de la santé du Canada
Box / CP 434
Station/Succursale K
Toronto, Ontario M4P 2G9

Canadian Medical Association Committee on the Health Care of the Elderly. **Health Care for the Elderly: Today's Challenges, Tomorrow's Options**. Ottawa: CMA, 1987. 79 p.

This major report, directed toward both the public and health professionals, was recently released at the CMA's annual general council meeting. The report identifies many strengths and weaknesses of the present health care system for the elderly in Canada. It also recognizes many critical areas, several of which are non-medical, that affect the independence of the elderly. Recommendations are directed to the numerous groups whose actions affect the lives of the elderly. Copies of the report, in English or French, are available for $10 from the Canadian Medical Association, PO Box 8650, Ottawa K1G 0G8.

Jaeggin RB, Drutz N, comps. **CRCD Rehabilitation Classification Scheme: A Specialized Subject Cataloguing System for Rehabilitation Information.** 3rd ed. Toronto: Canadian Rehabilitation Council for the Disabled, 1987. 192 p.

In February 1985, the library of the Canadian Rehabilitation Council for the Disabled (CRCD) commenced this major revision of its specialized cataloguing system, the **CRCD Rehabilitation Classification Scheme**. The third edition of the scheme incorporates two entirely new features: a Rehabilitation Thesaurus, and a list of standard subdivisions. A more detailed introduction will also assist the classification scheme user in understanding the cataloguing process. Another of the major improvements is the visual layout, with each subdivision clearly indented to illustrate its hierarchical relationship. The 3rd edition is designed for insertion in a ring binder to allow for future modifications. CRCD member organizations and Information Subscribers receive a complimentary copy with additional copies available upon request. Individual copies are available to others for $10.00 plus $2.00 postage and handling. Cheques should be addressed to the Canadian Rehabilitation Council for the Disabled. Additional information may be obtained from the CRCD Library, Suite 2110, One Yonge Street, Toronto, Ontario M5E 1E5. Tel: (416) 862-0340.

AIDS Information

A new publication by the Canadian Public Health Association, called **The New Facts of Life**, deals with education and public awareness rather than with the epidemiologic or clinical aspects of the disease. This newsletter contains the latest information on AIDS-related resources, community groups, future events, programs, and other issues of concern to health professionals and the public. To be added to the mailing list, contact the Canadian Public Health Association, Suite 210, 1335 Carling Ave., Ottawa Ontario K1Z 8N8. Tel: (613) 725-3769.

The Ontario Ministry of Health has published a revised 48-page booklet called **Understanding AIDS and HIV Infection** that is aimed at countering the concern about the disease and virus among hospital and health care employees. The booklet includes a chapter on precautions employees can take and deals with such ethical concerns as refusal to care for an infected patient. Free copies are available from the Ministry of Health, Health Information Centre, 9th Floor, Hepburn Block, Queen's Park, Toronto Ontario M7A 1S2. Tel: (416) 965-3101.

POSITION AVAILABLE

ASSISTANT HEAD, TECHNICAL SERVICES DIVISION
Health Sciences Library, Memorial University of Newfoundland

The Health Sciences Library of Memorial University of Newfoundland is seeking candidates for the position of Assistant Head, Technical Services Division. This position reports directly to the Head, Technical Services Division and, in the absence of the Head, is responsible for the supervision of the Division's nine FTE support staff.

DUTIES AND RESPONSIBLITIES: The primary function of this position is to conduct a comprehensive review of the Division's policies and procedures and to submit recommendations to the Head, Technical Services. In addition, the successful applicant will be responsible for evaluating vendor performance and selection; planning and supervising a stack shift of the Library's journal collection of approximately 50,000 volumes; and organizing and coordinating a local union list of serials for the St. John's hospital libraries. Other divisional responsibilities include: assisting the Head, Technical Services in planning for the implementation of an on-line system; assisting in the interpretation and application of AACRII; and working on special projects as required.

The successful applicant will also assist in the provision of information services to the Library's clientele and will participate in the monthly meetings of the Library's professional staff where general Library programmes and policies are discussed.

QUALIFICATIONS: An MLS or BLS from an accredited programme is required. A minimum of two years experience in technical services, preferably in the health sciences, is a prerequisite for the position. Experience in serials is essential. Knowledge of and interest in the application of on-line systems in a technical services environment is highly desirable.

This position is offered on a two-year contractual basis. While the date of appointment is negotiable, the deadline for application is December 18, 1987. Those interested in being considered for this position should forward their resumé and the names of three references to:

C. Quinlan, Health Sciences Librarian
Health Sciences Library, Health Sciences Centre
Memorial University of Newfoundland
St. John's, Newfoundland A1B 3V6

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